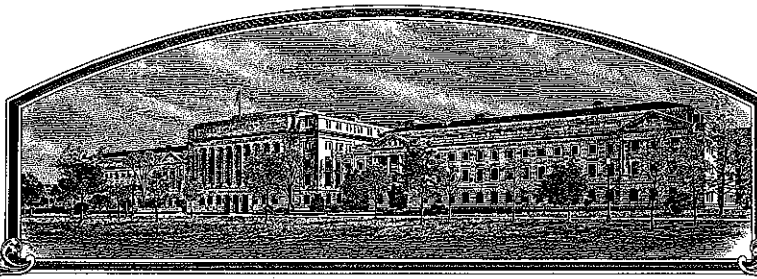


No.

200600008



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Texas Agricultural Experiment Station

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSES, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMERICAL GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

TRITICALE

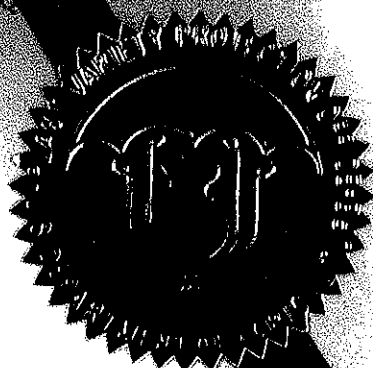
'TAMcale 6331'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this fourteenth day of February, in the year two thousand and six.

Attest:


Commissioner
Plant Variety Protection Office
Agricultural Marketing Service


Secretary of Agriculture

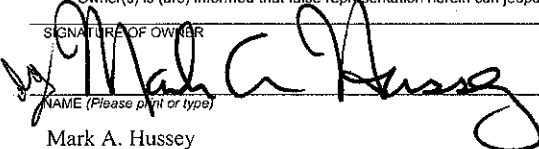


U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER Texas Agricultural Experiment Station		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME TX94VT6331		3. VARIETY NAME TAMcale 6331	
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) Dr. Mark A. Hussey Associate Director, TAES 2147 TAMU College Station, TX 77843-2147		5. TELEPHONE (include area code) (979) 845-4747		FOR OFFICIAL USE ONLY PVPO NUMBER 200600008 FILING DATE October 11, 2005	
		6. FAX (include area code) (979) 458-4765			
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) State of Texas Research Agency		8. IF INCORPORATED, GIVE STATE OF INCORPORATION		9. DATE OF INCORPORATION	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) Janie Hurley Technology Licensing Manager, Agriculture/Life Sciences Technology Licensing Office The Texas A&M University System 3369 TAMU College Station, TX 77843-3369				FILING AND EXAMINATION FEES: \$ 3652.00 DATE 10-11-2005 CERTIFICATION FEE: \$ 768.00 DATE 01-19-2006	
11. TELEPHONE (Include area code) (979) 847-8682		12. FAX (Include area code) (979) 845-1402		13. E-MAIL jhurley@tamu.edu	
14. CROP KIND (Common Name) Triticale		16. FAMILY NAME (Botanical) Poaceae		18. DOES THE VARIETY CONTAIN ANY TRANSGENES? (OPTIONAL) <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERCIALIZATION.	
15. GENUS AND SPECIES NAME OF CROP x Triticosecale Wittmack		17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse) a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$3,652), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)				20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act) <input checked="" type="checkbox"/> YES (If "yes", answer items 21 and 22 below) <input type="checkbox"/> NO (If "no", go to item 23) 21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, WHICH CLASSES? <input checked="" type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED 22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS <input checked="" type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED (If additional explanation is necessary, please use the space indicated on the reverse.)	
23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)				24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)	
25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate. The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.					
SIGNATURE OF OWNER 		SIGNATURE OF OWNER			
NAME (Please print or type) Mark A. Hussey		NAME (Please print or type)			
CAPACITY OR TITLE Associate Director, TAES		DATE 10/06/05		CAPACITY OR TITLE DATE	

INSTRUCTIONS

200600008

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be **received** in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to **reproduce** the variety, or for tuber reproduced varieties verification that a viable (*in the sense that it will reproduce an entire plant*) tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for \$3,652 (\$432 filing fee and \$3,220 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfilled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$432 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office

Telephone: (301) 504-5518

FAX: (301) 504-5291

Homepage: <http://www.ams.usda.gov/science/pvpo/pvpindex.htm>

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and provide evidence that name has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: Seed Branch, AMS, USDA, 10301 Baltimore Avenue, Suite 401 NAL Building, Beltsville, MD 20705. Telephone: (301) 504-5682 <http://www.ams.usda.gov/lsg/seed.htm>.

ITEM

- 19a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
(2) the details of subsequent stages of selection and multiplication;
(3) evidence of uniformity and stability; and
(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
(1) identify these varieties and state all differences objectively;
(2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
20. If "Yes" is specified (*seed of this variety be sold by variety name only, as a class of certified seed*), the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See Regulations and Rules of Practice, Section 97.103).
23. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
24. See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.

22. CONTINUED FROM FRONT (Please provide a statement as to the limitation and sequence of generations that may be certified.)

23. CONTINUED FROM FRONT (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)

October 15, 2004 - Date of first sale of seed of 'TAMcale 6331' for commercial purposes (U.S.A.).

24. CONTINUED FROM FRONT (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

Exhibit A**Origin and Breeding History**

'TAMcale 6331' (experimental designation TX94VT6331) is a dual-purpose winter triticale (\times *Triticosecale* Wittmack). 'TAMcale 6331' is awned, white-glumed, and has good potential for both forage and grain production in the southern Great Plains.

'TAMcale 6331' is an F_4 derived line from the three-parent cross TSW2507/NE87T149//NE86T665. Stephen Baenziger made the cross during the winter of 1987-88 and shared the F_2 bulk with David Worrall, Texas Agricultural Experiment Station (TAES) at Vernon, Texas, in 1990. TSW2507 is a triticale germplasm line obtained by the University of Nebraska. NE87T149 and NE86T665 are both experimental winter triticale lines from Dr. Baenziger's program. The F_3 and F_4 generations were grown as bulk populations on the TAES farm at Chillicothe in 1991 (year of harvest) and 1992, respectively. Random heads were harvested from the F_4 population and were planted as head-rows at Chillicothe in the fall of 1992. The line that became TX94VT6331 was visually selected for its forage potential and was grown as a single plot in 1994 and in replicated trials thereafter. The selection criteria were forage potential and grain yield. TAES, through its Texas Foundation Seed Service, increased TX94VT6331 in 2002 and 2003.

'TAMcale 6331' has been observed for 9 generations during testing and seed increase, and is stable and uniform. No variants have been observed.

Exhibit B

Statement of Distinctness

'TAMcale 6331' is awned, white-glumed, and has good potential for both forage and grain production in the southern Great Plains. It is medium height, medium-late maturing, and has winter hardiness similar to most commonly grown hard winter wheat cultivars. It has been extensively tested in the Rolling Plains of Texas and, based on field observations, is resistant to the prevalent races of leaf rust and stripe rust.

'TAMcale 6331' is most similar to Trical 102 triticale; however, 'TAMcale 6331' is shorter than Trical 102 (by an average of 13 cm) and matures slightly earlier than the late-maturing Trical 102 (by an average of 4 days). Supporting data is attached in Tables 1 and 2. Agronomic data presented are from individual years at each location. Yield data contains the individual figures for each variety at each location in each year and 3-yr means.

Plant Characteristics: Plant height is less than the forage triticale cultivars, Hartman, Tallman, Trical 102, and Trical 2700 (Tables 1 and 2), and similar to Lockett wheat. No lodging was observed at the sites tested. Winter survival has been good at the sites tested, but data from locations with more severe winters is not available. The heading date of TX94VT6331 at Chillicothe was similar to Lockett wheat (Table 1), but slightly earlier than Trical 102. This medium-late maturity is considered good for spring forage production and is still satisfactory for grain production.

Another triticale with several similar characteristics was developed by TAES simultaneously and identified as TX96VT5019 (or 'TAMcale 5019'). Both 'TAMcale 6331' and 'TAMcale 5019' have been screened using polyacrylamide gel electrophoresis and they are genetically and phenotypically distinct. Also, TAMcale 5019 produces greater quantities of forage in the fall whereas 'TAMcale 6331' produces greater quantities of forage in the spring.

Table 1. Yield and Agronomic data from the Uniform Triticale Elite trial conducted during 2001-2003 at Chillicothe, Texas.

200600008

Lines/cultivar	Grain Yield				Test Weight ¹ (lbs/bu)	Height ² (cm)	Heading ³ (DOY)	Forage Yield ⁴ (lbs/a)
	2001	2002	2003	Average				
Lockett*	36.3	43.0	29.7	36.3	56.3	63	107	1264
Chron	30.2	43.8	30.4	34.8	51.3	79	108	2437
G75008	34.0	41.5	41.7	39.1	54.7	83	102	1686
G75012	32.1	45.7	37.5	38.4	54.5	90	102	1583
Hartman	30.4	37.8	22.8	30.3	50.2	97	110	1904
Presto	36.9	45.9	34.8	39.2	50.8	85	107	2148
Tallman	22.6	42.6	16.4	27.2	48.7	101	111	1856
Trical 102	21.0	50.9	29.5	33.8	48.8	98	111	1731
Trical 2700	37.7	38.6	28.1	34.8	50.8	96	109	2983
Vero	37.5	37.1	36.3	37.0	50.7	91	108	2580
TX94D5792	39.1	44.3	33.2	38.9	51.3	84	107	1976
TX94D7575	42.0	44.2	37.4	41.2	51.7	78	107	2166
TX96D2433	30.7	45.7	35.5	37.3	49.4	74	106	2054
TX97D6942	34.4	55.2	35.1	41.6	51.7	81	107	1497
TX97D6943	26.2	40.4	34.4	33.7	50.4	82	107	2027
TX97D6947	34.0	45.5	28.9	36.2	52.5	84	109	1967
TX97D6957	28.8	42.7	31.3	34.3	52.6	76	111	1931
TX98D920	36.4	43.5	37.6	39.2	51.5	90	105	2677
TX98D924	35.4	45.1	35.0	38.5	51.9	82	107	1749
TX98D955	40.0	44.1	34.8	39.6	51.6	80	107	1798
TX99D4701	33.1	43.2	35.6	37.3	52.0	82	107	2657
TX99D4702	36.2	45.9	35.1	39.1	52.5	81	106	2022
TX96VT5019	35.6	45.3	35.2	38.7	50.7	86	107	2231
TX94VT6331	37.3	40.0	36.7	38.0	51.2	85	107	2407
TX97VT8207	39.9	40.3	38.1	39.4	53.0	85	107	2165
TX98VT8631	40.7	47.2	35.9	41.3	51.4	85	107	2341
TX98VT8633	40.2	36.4	39.4	38.7	50.3	82	107	1249
TX99VT3507	19.2	41.3	37.2	32.6	50.1	86	105	1869
TX99VT3721	41.0	42.2	44.7	42.6	52.1	83	106	2672
TX99VT3737	44.1	48.3	45.1	45.8	51.6	89	107	1932
TX99VT3916	40.9	48.0	38.9	42.6	51.7	83	107	1793
TX99VT3917	44.1	46.2	38.9	43.1	52.9	81	107	1676
Grand Mean	34.2	43.9	34.3	38.0	51.4	83.9	106.6	2111.1
LSD (5%)	10.2	13.8	7.4			6.7	1.4	928.5
CV (%)	18.3	19.4	13.2			4.9	0.8	27.1

* Hard Red Winter Wheat

¹ Three year average

² 2003 data

³ 2003 data; DOY= Day of the Year, starting from January 1

⁴ 2003 data; forage clipping date= 3/4/03

Table 2. Yield and agronomic data from the Uniform Triticale Elite trial conducted during 2002 at Bushland, Texas.

<i>Line/cultivar</i>	<i>Grain Yield (bu/a)</i>	<i>Test Weight (lbs/bu)</i>	<i>Height (cm)</i>
Lockett ¹	15.6	54.6	40
Elbon ²	10.1	54.4	68
Chron	8.8	49.8	55
G75008	19.2	51.5	59
G75012	17.8	49.6	65
Hartman	8.8	50.3	70
Presto	14.9	52.2	72
Tallman	2.7	29.6	68
Trical 102	7.1	49.1	74
Trical 2700	6.5	47.0	70
Vero	11.0	48.9	65
TX94D5792	12.8	50.6	64
TX94D7575	12.3	50.8	60
TX96D2433	12.3	46.1	52
TX97D6942	9.9	51.2	61
TX97D6943	10.3	50.9	60
TX97D6947	8.5	50.2	62
TX97D6957	12.7	50.3	52
TX98D920	13.9	49.4	62
TX98D924	11.7	50.9	66
TX98D955	12.5	50.9	63
TX99D4701	11.9	50.9	57
TX99D4702	12.3	50.6	60
TX01D064	11.7	50.5	64
TX01D069	10.3	47.2	53
TX01D072	10.6	47.5	54
TX01D075	13.1	48.2	60
TX01D077	12.0	48.8	56
TX96VT5019	15.9	50.6	61
TX94VT6331	13.8	47.7	62
TX97VT8207	13.6	52.0	70
TX98VT8631	12.8	51.0	62
TX98VT8633	13.2	51.0	63
TX99VT3507	17.1	52.3	66
TX99VT3509	12.7	50.1	63
TX99VT3720	17.7	50.8	60
TX99VT3721	16.3	51.0	65
TX99VT3737	16.1	50.8	68
TX99VT3916	15.5	52.0	63
TX99VT3917	14.9	50.9	70
Grand Mean	12.5	49.8	62.1
LSD (5%)	2.7		7.7
CV (%)	13.1		7.6

¹ Hard Red Winter Wheat

² Rye

FORM GR-470-33
(8/75)U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
BELTSVILLE, MARYLAND 20705
OBJECTIVE DESCRIPTION OF VARIETY
TRITICALE**EXHIBIT C**
(Triticale)

NAME OF APPLICANT(S) Texas Agricultural Experiment Station	VARIETY NAME OR TEMPORARY DESIGNATION TAMcale 6331
ADDRESS (Street and No., or F.F.D. No., City, State, and Zip Code) 2147 TAMU, College Station, TX 77843-2147	FOR OFFICIAL USE ONLY PVPO NUMBER 200600008

Place the appropriate number that describes the varietal character of this variety in the boxes below.

Place a zero in first box (e.g.

0	8	9
---	---	---

 or

0	9
---	---

) when number is either 99 or less or 9 or less.**1. GROWTH HABIT:**

3	1 = SPRING	2 = INTERMEDIATE	3 = WINTER
2	Juvenile Plant Growth:	1 = PROSTRATE	2 = SEMIPROSTRATE 3 = ERECT
	Photoperiod:	1 = INSENSITIVE	2 = SENSITIVE

2. PLOIDY:

1	1 = HEXAPLOID	2 = OCTOPLOID	3 = OTHER (Specify) _____
4	2	2n CHROMOSOME NUMBER	

3. MATURITY (50% Flowering):

3	1 = VERY EARLY	2 = EARLY	3 = MIDSEASON	4 = LATE	5 = VERY LATE
0	4	DAYS EARLIER THAN.....	2	1 = Lockett winter wheat 2 = Trical 102 3 =	
0	0	DAYS LATER THAN	1	4 = 5 =	

4. HEIGHT:

0	8	5	CM. HIGH	4	1 = DWARF	2 = SEMIDWARF	3 = SHORT
1	3		CM SHORTER THAN.....	2	4 = MIDTHALL	5 = TALL	
2	2		CM. TALLER THAN.....	1	1 = Lockett winter wheat 2 = Trical 102 3 =		
					4 = 5 =		

5. PLANT COLOR AT BOOT STAGE:

3	1 = YELLOW GREEN	2 = GREEN	3 = BLUE GREEN
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6. STEM:

1	Anthocyanin:	1 = ABSENT	2 = PRESENT
4	Neck Hairiness:	1 = NONE	2 = SLIGHT 3 = MODERATE 4 = HEAVY
1	Shape of Neck	1 = STRAIGHT	2 = WAVY 3 = OTHER (Specify) _____

7. LEAVES:

2	Flag Leaf:	1 = NOT TWISTED	2 = TWISTED	2	7	CM. LEAF LENGTH: 1 st Leaf Below Flag Leaf
2	Waxy Bloom on Leaf at Boot:	1 = ABSENT	2 = PRESENT	2	8	MM. LEAF WIDTH: 1 st Leaf Below Flag Leaf
3	Leaf Carriage:	1 = UPRIGHT	2 = RECURVED	1	Auricle Color: 1 = COLORLESS OR WHITE 2 = PURPLE	
		3 = DROOPING			3 = OTHER (Specify) _____	

8. HEAD:

Density: 1 = LAX 2 = MIDDENSE 3 = DENSE

200600008

Shape: 1 = FUSIFORM 2 = OBLONG 3 = CLAVATE 4 = ELLIPTICAL 5 = OTHER (Specify) _____

Awedness: 1 = AWNLESS 2 = APICALLY AWNLETTERED 3 = AWNLETTERED 4 = AWNED

Awn Color: 1 = WHITE 2 = YELLOW 3 = TAN 4 = BROWN 5 = BLACK

CM. HEAD LENGTH MM. HEAD WIDTH

9. GLUMES AT MATURITY:

Pubescence: 1 = GLABROUS 2 = SLIGHTLY PUBESCENT 3 = PUBESCENT

Color: 1 = WHITE 2 = YELLOW 3 = TAN 4 = BROWN 5 = BLACK

Length: 1 = SHORT 2 = MIDLONG 3 = LONG Width: 1 = NARROW 2 = MIDWIDE 3 = WIDE

Shoulder: 1 = WANTING 2 = OBLIQUE 3 = ROUNDED 4 = SQUARE 5 = ELEVATED 6 = APICULATE Beak: 1 = OBTUSE 2 = ACUTE 3 = ACUMINATE

10. COLEOPTILE COLOR:

1 = WHITE 2 = GREEN 3 = PURPLE

11. SEED:

Shape: 1 = OVATE 2 = OVAL 3 = ELLIPTICAL

Smoothness: 1 = SMOOTH 2 = SLIGHTLY WRINKLED 3 = WRINKLED

Brush Area: 1 = SMALL 2 = MIDSIZE 3 = LARGE

Brush Length: 1 = SHORT 2 = MIDLONG 3 = LONG

Phenol Reaction: 1 = IVORY 2 = FAWN 3 = LIGHT-BROWN 4 = BROWN 5 = BROWN BLACK

Color: 1 = WHITE 2 = AMBER 3 = RED 4 = PURPLE 5 = BLACK 6 OTHER (Specify) _____

GMS. PER 1,000 SEED

12. DISEASE (0 = Not Tested, 1 = Susceptible, 2 = Resistant, 3 = Tolerant):

STEM RUST (Races) _____ LEAF RUST (Races) _____ Field prevalent

STRIPE RUST (Race) _____ Field prevalent ERGOT

POWDERY MILDEW _____ BACTERIAL STRIPE

SEPTORIA _____ YELLOW DWARF

OTHER (Specify) _____ OTHER (Specify) _____

13. INSECT (0 = Not Tested, 1 = Susceptible, 2 = Resistant, 3 = Tolerant):

GREENBUG

CEREAL LEAF BEETLE

OTHER (Specify) _____

HESSIAN FLY RACE:

GP A B C
 D E F G

14. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

200600008

CHARACTER	VARIETY
PLANT TILLERING	Presto
WINTER HARDINESS	Presto
AREA OF ADAPTATION	Presto
SEED SHAPE	Presto

REFERENCES:

L.W. Briggie and L.P. Reitz, 1963, Classification of Triticum Species and Wheat Varieties Grown in the United States, Technical Bulletin 1278, USDA.

W.E. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, Contribution No. 28 to the handbook of seed testing prepared by the Association of Official Seed Analysis.

COMMENTS:

Head carriage at maturity: Majority of heads are angled 60-80° (0° = upright head).

Exhibit D**Additional Description of Variety**

Yield: TX94VT6331 has been tested in the TAMU Uniform Triticale Elite (UTE) trial since 2001. Tables 1-3 present data from the UTE for three years from Chillicothe (Rolling Plains), one year from Bushland (High Plains), and one year from Ardmore, OK. Grain yield of TX94VT6331 was similar to 'Lockett' wheat and the test weight was similar to other commercially available triticale cultivars. Lockett winter wheat was included as a check cultivar since it is commonly used as a winter forage crop in the Rolling Plains of Texas. Clipping data (Table 1) and a visual forage rating (Table 3) indicate that the forage production of TX94VT6331 is much greater than that of Lockett.

The Rolling Plains Small Grains Forage Trial included TX94VT6331 since 2001 and data is presented in Tables 4-7. Forage yields of TX94VT6331 were significantly greater than those of Lockett in three out of six site-years (Tables 4-6) and averaged 40% greater across the six site-years (Table 7). Forage production was measured in both the fall and the spring in 2002. Fall forage production and spring forage production of TX94VT6331 was similar when averaged across the two 2002 sites (Table 5). Commonly grown rye ('Bates'), barley ('TAMBAR 501'), and oat ('Dallas') cultivars were included in the 2002 and 2003 trials. Forage yields of TX94VT6331 were similar to the rye, barley, and oat at both of the 2002 sites. In 2003, TX94VT6331 produced significantly more forage than the barley and oat cultivar at the King site.

Table 4. Forage yield from the Rolling Plains Small Grains Forage trial conducted during 2001 at Old Glory, Texas.

<i>Lines/Cultivar</i>	<i>Forage Dry Weight 4/23/2001 (lbs/A)</i>
TX94VT6331	6239
TX96VT5019	6222
5019+6331 Mix	5928
Txtri	5573
TAM 400	5443
Coronado	5284
W97-234	4991
TAM 302	4829
Triplecale	4742
HG9	4741
Jagger	4614
2174	4437
TAM 202	4322
Thunderbolt	4197
Lockett	4007
Bradley	3972
LSD (10%)	672
CV (%)	10

Table 5. Forage yield from the Rolling Plains Small Grains Forage trial conducted during 2002.

Lines/Cultivar	Forage Yield -----lbs/a-----									
	Bellevue			Old Glory			Means Across Locations			
	17-Dec	12-Mar	Total	17-Dec	12-Mar	Total	17-Dec	12-Mar	Total	Total
TX96VT5019 Triticale	484	668	1153	836	588	1424	660	628	1289	1289
Bates Rye	648	472	1121	710	732	1443	679	602	1282	1282
TAMBAR 501	660	240	900	970	564	1534	815	402	1217	1217
TX94VT6331 Triticale	379	300	679	846	856	1702	613	578	1191	1191
Mason (Soft Wheat)	292	428	720	784	808	1592	538	618	1156	1156
Dallas Oats	398	248	646	785	704	1489	592	476	1068	1068
Jagger	399	328	728	704	672	1377	552	500	1053	1053
HG-9	360	296	657	866	520	1386	613	408	1022	1022
Cutter	556	256	812	613	584	1197	585	420	1005	1005
Custer	314	244	558	811	524	1335	563	384	947	947
Lockett	366	376	742	639	500	1139	503	438	941	941
TAM 400	652	340	993	568	308	877	610	324	935	935
2174	383	308	691	602	484	1086	493	396	889	889
Ogallala	356	356	712	621	380	1001	489	368	857	857
Marshall Ryegrass	278	384	662	560	408	968	419	396	815	815
Thunderbolt	364	252	616	576	368	944	470	310	780	780
LSD (10%)	NS	142	NS	NS	198	390				
CV (%)	45	30	31	28	25	22				

Table 6. Forage yield from the Rolling Plains Small Grains Forage trial conducted during 2003.

Lines/cultivar	Forage Yield -----lbs/a-----			
	Clay 4/1/2003	Kent 3/28/2003	King 3/28/2003	Mean 3/28/2003
Mason (Soft Wheat)	133	3412	1315	1620
TX94VT6331 Triticale	171	2788	1889	1616
Bates Rye	123	2276	2422	1607
Sturdy 2K	120	3400	1217	1579
Jagalene	182	2894	1449	1508
TX96VT5019 Triticale	160	2423	1873	1485
Cutter	203	2599	1509	1437
TAM 202	170	2350	1681	1400
Weathermaster 135	146	2756	1234	1379
Lockett	170	2449	1483	1367
HG-9	181	2833	948	1321
TX96D093 Oat	99	2215	1526	1280
Dallas Oat	152	2532	1139	1274
2174	205	2465	985	1218
TAMBAR 501 Barley	117	2090	1156	1121
Lockett + Rye grass	130	1921	1225	1092
LSD (5%)	NS	658	339	
Standard Deviation	54	475	245	
CV (%)	35	18	17	

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Table 7. Summary of three years of forage yield from the Rolling Plains Small Grains Forage trial.

Lines/cultivar	Forage Yield			
	2000/01	2001/02	2002/03	Average
TX94VT6331	6239	1191	1616	3015
TX96VT5019	6222	1289	1485	2999
Lockett	4007	941	1367	2105
HG9	4741	1022	1321	2361
2174	4437	889	1218	2181
# lines tested	16	16	16	
# sites tested	1*	2**	3***	

*Old Glory

**Bellevue and Old Glory

***Clay, Kent, and King

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

1. NAME OF APPLICANT(S) Texas Agricultural Experiment Station	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER TX94VT6331	3. VARIETY NAME TAMcale 6331
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country) Office of the Director, TAES 2147 TAMU College Station, TX 77843-2147	5. TELEPHONE (Include area code) (979) 845-4747	6. FAX (Include area code) (979) 458-4765
7. PVPO NUMBER 200600008		

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain. ☒ YES ☐ NO9. Is the applicant (individual or company) a U.S. national or a U.S. based company? If no, give name of country. ☒ YES ☐ NO10. Is the applicant the original owner? ☒ YES ☐ NO If no, please answer one of the following:a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?
☐ YES ☐ NO If no, give name of countryb. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?
☐ YES ☐ NO If no, give name of country

11. Additional explanation on ownership (Trace ownership from original breeder to current owner. Use the reverse for extra space if needed):

TAES policy and handbook manual provide that all germplasm and varieties developed by its employees in the course of their duties are owned by TAES. A copy of this policy is provided for your records.

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 0.1 hour per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, D.C. 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

**TEXAS AGRICULTURAL EXPERIMENT STATION
HANDBOOK**


NUMBER 1250B

PAGE 1 OF 8

ISSUED: March 31, 1995

STANDARD PROCEDURE
MANAGEMENT AND RELEASE OF NEW PLANT MATERIALS
1.00 PURPOSE AND BACKGROUND

The purpose of this document is to outline guidelines for the management and transfer of plant materials developed by the Texas Agricultural Experiment Station (Experiment Station) recognizing diversity in agronomic, horticultural, and industrial plant programs. The terms "plant material" and "seed" are intended to be all-inclusive, including vegetatively propagated plant materials, such as sprigs, rhizomes, or buds.

The Experiment Station, as part of the Texas A&M University System (System), and in cooperation with the Texas Agricultural Extension Service (Extension), conducts research in crop breeding and genetic improvement to benefit the public and support the educational mission of Texas A&M University (TAMU), including the development and release of improved germplasm and new crop cultivars.

The Experiment Station, part of the public agricultural research system, has a broad mission to serve agriculture, particularly farmers and the general public. Farm, commodity, and trade organizations are encouraged to provide suggestions to enhance crop improvement and the distribution of new plant materials. Plant materials are considered as intellectual property and are owned and managed by the Experiment Station, under System policies.

Three basic goals are summarized in Section 2.00 to guide release decisions. General guidelines and methods are outlined in Section 3.00 for transferring plant material for private and commercial uses. The classification of plant materials and types of releases is intended to assist both the breeder and seed users in understanding some alternatives in managing releases. Partnerships, joint incentives, and sharing of research materials are encouraged.

DISTRIBUTION:

ALL HANDBOOKS

APPROVAL:

EDWARD A. HILER

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SUBJECT: MANAGEMENT AND RELEASE OF
NEW PLANT MATERIALS**2.00 GOALS IN PLANT MANAGEMENT AND RELEASE**

Three general goals provide the basic criteria for the management of plant materials and release decisions. These goals include:

- A. Maximize Public Benefit. Plant material must be utilized by farmers and consumers to benefit the public. Plant material must be increased and managed to retain genetic purity. Variety or designated names provide identity and recognition to the originator of the improved plant materials. Commercial production and the distribution of plant releases are essential for both large and small acreage crops. Protection agreements and licensing provisions are frequently necessary to complete research and assure transfer of materials to the private sector.
- B. Assure Technology Transfer to the Private Sector. The Experiment Station serves as a primary producer and distributor of new plant materials and depends upon the private sector to increase and market seed. State and federal plant protection provisions, protected names, trademarks, and/or markers (such as biochemical identification) may be useful in transferring technology to the private sector.
- C. Recover Costs and Generate Revenue. The generation of funds through seed sales, fees, and other business terms is essential to recover some development costs and protection expenses, maintain competitive science, and enhance future crop improvement research. Financial terms and license provisions on plant materials must be realistic and consistent with the biological potentials and business environment.

3.00 GENERAL GUIDELINES AND KEY PARTICIPANTS

- A. General Guidelines are outlined below for the orderly equitable release, distribution, and protection of plant materials.

Partnerships and Cooperation. The Experiment Station is responsible for research in crop breeding and genetic enhancement and assuring the timely transfer of this work to agricultural, scientific and industrial communities. Cooperation among the faculty and between faculty and external scientific and industrial interests is essential. Private interests are increasingly providing resources for research, in return for some preferential access to plant products and new technology. The commercialization of research had been encouraged both by Legislative mandates to the Experiment Station and through actions by the Board of Regents to provide financial incentives to faculty and staff to develop products or services of commercial usefulness.

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SUBJECT: MANAGEMENT AND RELEASE OF
NEW PLANT MATERIALS

Plant Release Proposals - Early discussion with Texas Foundation Seed Service (TFSS), the Plant Review Committee (PRC), and the System Technology Licensing Office (TLO) is encouraged in planning a new release. The breeder generally assumes a lead responsibility for preparing and submitting the Release Proposal (outlined in Section 5.00). Plant material is considered to be owned and under the stewardship of the Experiment Station. If a decision is made to not release particular plant materials, then the disposition and use of that material remains the discretion of the Experiment Station.

Exchange and Distribution. Exchange of plant material for breeding and genetic research is encouraged for public institutions and private industry and may include regional testing, Extension trials, and cooperative evaluations. "Selected Plant Materials" (see Section 4.00) may be provided to private firms, public breeders, grown on private lands, or placed with a private producer for further commercial evaluation before it is formally released.

Transfer and Protection - The formal release and transfer of new plant materials will usually involve public notices of availability and may involve Requests for Proposals or expressions of interest from private firms and/or the transfer of intellectual property rights through the use of licenses and agreements. The Experiment Station, in conjunction with the Breeder and the TLO, will consider applications for the appropriate intellectual property protection such as Certificates of Plant Variety Protection, Plant Patents, or Utility Patents in facilitating the transfer and protection of new plant materials. Additionally, in some instances individual firms and/or industrial groups may enter into research or partnership agreements on intellectual property, to gain access to genetic products.

Distribution of any plant material should be documented to avoid premature release, unauthorized distribution, misunderstandings over ownership, or loss of intellectual property rights. Protection agreements during research help assure that private firms can acquire rights and marketing opportunities later and/or protect their investment in marketing new products. Material Transfer Agreements (MTAs) are to be used in providing material to private firms and public agencies for evaluation (with copies filed with Texas Foundation Seed Service and the Technology Licensing Office).

B. Roles of Key Participants

Scientific quality, summary of research, review of proposals, and technology transfer involve several individuals and groups working together. Successful plant release includes institutional flexibility to meet the needs of each crop or release. Roles of primary participants are outlined as follows:

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SUBJECT: MANAGEMENT AND RELEASE OF
NEW PLANT MATERIALS

Plant Breeders and other scientists provide the major leadership in research and the release of plant materials. Responsibilities include research planning, periodic reviews on future releases, assuring materials are adequately protected, preparation of release proposals, and suggesting ways to implement release. A team is frequently involved with a release and may involve several disciplines and recognition of co-worker contributions.

Cooperative evaluations are encouraged, particularly with Extension Specialists. The Plant Review Committee commonly looks for Extension participation on new variety releases. Breeders maintain Breeder Seed and may provide technical or advisory assistance to TFSS, TLO or commercial firms.

Department Heads and Resident Directors provide a key role in crop improvement programs by guiding coordination between disciplines, and helping assure the TFSS, TLO and others are aware of potential releases. These Administrative Heads provide a vital linkage in planning, implementation and guidance for the total crop improvement program.

Program Coordinators provide communication among the developers of plant materials, the seed industry, and crop producers on scientific progress and the transfer of new materials into crop productions. The Head of the Department of Soil and Crop Sciences and Resident Director of Research at the Texas A&M Agricultural Research and Extension Center at Beaumont serve as Program Coordinators for all field crops and turfgrass, while the Head of the Department of Horticultural Sciences serves as the Program Coordinator for fruit, vegetable, and nut crops, including emphasis on industry relationships. Activities of Program Coordinators include:

1. Effective communication among breeders, department heads, resident directors, and with industry and producer interests;
2. Development of new partnerships between the Experiment Station and industry/producer interests, plus industry relationships and liaison with industry associations;
3. Advising the Director on release and licensing issues, and interacting with the Technology Licensing Office as appropriate. The Coordinators will report to the Director of the Experiment Station in these roles.

The Texas Foundation Seed Service, located at Vernon, will be responsible for the production of foundation seed and assisting breeders in the production of breeder's seed, as requested, and/or where required by a contract or license agreement managed by the TLO. The operation is expected to be largely self-sufficient.

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SUBJECT: MANAGEMENT AND RELEASE OF
NEW PLANT MATERIALS

TFSS works with TLO, other Foundation Seed organizations, Crop Improvement Associations in other states, the Texas Department of Agriculture, USDA, and other state and federal agencies. When plant materials are licensed or managed under an agreement, TFSS works closely with the TLO.

TFSS works with a lead Extension Specialist to coordinate seed for county and regional field tests, manages the increase and distribution of foundation seed stock and handles revenues from seed sales and nonlicensed products.

The Plant Review Committee (PRC) is a standing internal committee appointed by the Director of the Experiment Station to oversee the orderly release of plant materials, provide guidance to TFSS and TLO, and to make recommendations to the Director of the Experiment Station on plant materials. Activities of the PRC include:

1. Establish technical review panels to evaluate release proposals.
2. Hold quarterly meetings to review release proposals and meet with breeders who are planning releases, and act on release proposals.
3. Provide recommendations to the TFSS, TLO and Director's Office on release proposals, cultivar names, and agreements on licensing and advise the Director of the Experiment Station on release and licensing issues. If a question arises between faculty on "proportional creativity" or royalty sharing, the PRC may make recommendations to the Experiment Station Director.

The Technology Licensing Office is involved in initial discussions and planning with breeders, unit heads, Program Coordinators, and TFSS on planned releases suitable for licensing. In conjunction with the Program Coordinators and breeders, the TLO provides leadership and initiative for the protection and management of intellectual property for new releases including the following services:

1. Management of license and royalty agreements;
2. Marketing of new selected plant materials to commercial firms;
3. Development and negotiation of license and evaluation agreements;
4. Management of intellectual property protection;
5. Advice on business strategies and intellectual property protection issues; and
6. Advises and keeps the Assistant Vice Chancellor for Administration (Agriculture) who represents the Experiment Station apprised of all services provided by the TLO in the management of new plant materials.

4.00 TYPES OF RELEASES AND PROTECTION

- A. Classes of Material - Improved plant materials may result from genetic manipulation by plant breeding and/or molecular and cellular biology. For purposes of management and release, plant materials are classified as follows:
1. Genetic Stocks: Research in plant breeding, genetic and/or cellular and molecular biology may produce unique genetic characteristics or distinct genetic materials useful to other researchers. Examples include specific genetic characters, genes or gene constructs involving vectors, and promoters. An essential characteristic of genetic stocks is that they have no immediate commercial value.
 2. Germplasm: Germplasm is commonly used to further research, with little value for increase or direct commercial use in its present form. However, some desirable characters may be immediately useful to breeders and industry in developing improved varieties in other research programs.
 3. Breeding Lines: Breeding lines may contain useful characteristics of unique traits with apparent commercial value. Breeding lines may be increased in their present form, used for selection, or tested further before commercialization. The Experiment Station may choose to release some advanced materials as "breeding lines" rather than continue research for commercial applications as varieties or inbred lines.
 4. Selected Plant Material: Selected plant materials may be transferred to public or private firms for cooperative research, usually under a protection agreement, for further development, feasibility studies, or commercial exploration.
 5. Commercial Varieties or Parental/Inbred Line: These plant materials are released for direct commercialization as new varieties or production of hybrids; release depends on clear demonstration of performance or traits in several experiments over several years, locations and/or conditions.
- B. Types of Releases and Transfer
- Release of plant materials is based on several factors (such as crop species, means of propagation, and commercial potential). Flexibility is essential to meet specific economic, biological or industry needs. Alternatives for release and distribution of plant materials include:

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SUBJECT: MANAGEMENT AND RELEASE OF
NEW PLANT MATERIALS

1. Unrestricted Unlimited Release - An Unrestricted Unlimited Release is intended for general uses of those plant materials with undefined uses or low commercial potential, without any restrictions on research or commercialization uses. One-time fees may be requested to recover costs.
2. Restricted Release - A Restricted Release designates specific uses for plant material, with an agreement with recipients, noting restrictions, applications, and mutual interests.
3. Limited Release - A Limited Release involves specific recipients, to enable selected firms to use plant materials. Agreements may be developed with a small number of firm(s), firms selected on the basis of their proposal, and/or provide a protected position for a single firm or organization to complete research and/or assume commercial development. Limited Releases are usually managed under a license or option agreement, with financial terms and performance expectations.
4. Unreleased Transfer - Some plant materials may not be immediately released but simply provided to others for additional research or commercial feasibility studies. "Selected Plant Materials" may be managed under a Material Transfer Agreement or an Option Agreement, until specific traits and usefulness are determined and a formal release is proposed.

- C. Pre-release Protection is essential to clarify ownership and transfer uses and rights to others later. Material Transfer Agreements (MTAs) and other sample documents are available from TLO. A copy of all pre-release documentation (MTA's and other documents) should be provided by the breeders to the Technology Licensing Office, Foundation Seed Service and Program Coordinators.

Exchange of plant materials for research uses with other public breeders may be handled directly by the breeders, through an MTA with the (1) identification and quantity of materials being provided to a co-worker, (2) clarifying the anticipated uses for breeding and research purposes, (3) stating that the Experiment Station retains its ownership, and (4) obtaining written acknowledgment from the recipient.

Field testing and commercial scale evaluations are encouraged, involving other breeders, Extension Specialists, farmers or others. Most commonly seed for one season is provided for field trials and is not to be retained or transferred to others. An MTA should be completed with farms or cooperators to clarify expectations.

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SUBJECT: MANAGEMENT AND RELEASE OF
NEW PLANT MATERIALS**5.00 THE RELEASE PROPOSAL AND PROCESS**

- A. Release proposals are prepared by the breeders and summarize the background, current facts, and plant performance/traits. The release proposal may vary in detail, depending on the class of plant material (please see Section 4), however all release proposals should include these sections:

1. Background - information on the source, origin, or breeding history.
2. Performance and Traits - summary of key features, data, anticipated usefulness, and/or disclosure limitations or unknown features. This section may be brief for germplasm and more detailed for a variety (including details on yields, statistics, quality, host plant resistance, and regions of adaptation).
3. Seed production and availability - type and quantity of seed availability for increase or distribution.
4. Implementation - breeder's suggestion on notifications, release and distribution, and guidance for outreach (including protection as appropriate) and revenue sharing (for royalties, if others were involved in the creative development).

The Release Proposal should be prepared for internal review with sufficient data and information for a peer group to evaluate merits and make decisions. Alternatively, the Release Proposal may be prepared (or later converted) as a Station publication, to document research and provide technical information for others.

- B. Registration Article (for submission to a professional journal) should be with the proposal for a new variety or germplasm release. Include a draft of the Experiment Station Leaflet for new varieties. The original and 15 copies of the entire package Release proposal, Registration Article, and Leaflet (as appropriate) should be submitted through the administrative head and Program Coordinator to the PRC (with one copy to the Foundation Seed Office) eight weeks before the quarterly PRC meetings. Additional information on preparing and submitting releases is available from the PRC Chair.

C. Revenue Distribution

Royalties or income generated from the commercialization of plant materials will be distributed to the inventors on all types of plant material, according to the TAMU System policy on intellectual property (System Policy 17.02, Patents). Scientists involved in the development of plant materials that generate royalties or income under a license or option agreement must agree in advance regarding proportionate contributions and sharing of expected income prior to the distribution of such income.